



Wisconsin Department of Natural Resources

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**Economic Contribution of Forest Products Industry to Wisconsin Economy, 2020**  
**(Based on 2017 IMPLAN data)**

**By**  
**Ram Dahal**  
**Forest Economist**  
**Wisconsin Department of Natural Resources**

## Introduction

Wisconsin has more than 17 million acres of forest land covering 41% of the state total area (Miles, 2017). Of the 17 million acres, timberland accounts for about 97% or 16 million acres. Private landowners are the largest group, accounting for about 70% of forest land. The Northwest shares the largest percent of forest land (33%), of which about 60% is privately owned, whereas the Southeast share the least (8%), 85% of it is privately owned (Counties included in each region is presented in Figure 2). Of the 16 million acres of timberland, 72% is owned privately, 20% is owned by state and local government, and 8% is national forest and other federal timberland.

In 2017, net growth of merchantable bole of growing-stock on forestland was 575 million cubic feet whereas average annual removal was 300 million cubic feet, suggesting more volume of wood could be sustainably harvested. The portion to total removal from hardwood was 226 million cubic feet (75%) and softwood was 75 million cubic feet (25%) (Table 1).

Table 1. Forestland area, timberland area, net growth volume, and average annual removal volume for Wisconsin (FIA report)

	2005	2008	2011	2014	2017
Forestland in million acres	16.12	16.70	16.98	17.09	17.02
Timberland in million acres	15.66	16.18	16.43	16.53	16.47
Net growth of merchantable bole volume of growing stock, in million cubic feet, on forestland	587.20	569.00	549.49	583.25	575.49
Average annual removal of merchantable bole volume of growing stock, in million cubic feet, on forestland	353.06	308.64	303.07	310.84	300.98
Softwood removal, in million cubic feet	78.93	63.41	72.68	78.12	74.69
Hardwood removal, in million cubic feet	274.13	245.23	230.39	232.72	226.29

In 2017, forestland owned by the state or counties generated about \$50 million worth of timber revenue (County and State Forest Timber Sales, 2017). Of this total, county forestland accounted for 76% of total sales. The forest sector makes a considerable contribution to the local, county, state, and regional economy. In 2017, the forest products industry continued to be one of the leading manufacturing sectors in the state. Based on total economic contribution of the forest products industry, Wisconsin ranked second nationwide in terms of total employment

contribution (171,000 jobs) and total employee compensation (\$9 billion) and third in terms of total value-added (\$15.9 billion) (Pelkki and Sherman, 2019).

This study uses the most recent data available (2017) to report on the Wisconsin forest sector's economic contribution to local economies. Economic contributions were reported for the forest products industry as a whole and individually for its three main components: forestry and logging, sawmills and wood products, and pulp and paper. The contributions are further divided to capture variations across regions.

### **Methods and data**

The Impact Analysis for Planning (IMPLAN) data and software were used to construct an input-output model of Wisconsin's economy. Economic contributions of the forest products industry were estimated using 2017 IMPLAN data, the most recent available, and were reported in 2017 dollars<sup>1</sup>. IMPLAN is a computerized input-output modeling system originally developed by the USDA Forest Service and is currently maintained by the IMPLAN Group LLC. IMPLAN is a flexible model where analysts can change production functions, trade flows, and other data (MIG, 2004). IMPLAN data are available at national, state, county, and zip code level. The database used by IMPLAN is compiled from U.S. Bureau of Economic Analysis, U.S. Department of Agriculture, U.S. Bureau of Labor Statistics, and U.S. Census Bureau (Cheney, 2019).

The 2017 IMPLAN data summarizes the economy in 536 sectors whereas Wisconsin's economy was represented by 494 sectors. For reporting purpose these sectors were aggregated into 23 sectors based on two-digits NAICS code, including the three forestry and forest products-related sectors (Appendix 2). The 23-sector aggregation scheme consists of forestry and logging, sawmills and wood products, pulp and paper, and 20 non-forestry related sectors (Table Appendix 2). The three major forest products industry sectors are comprised of 28 IMPLAN sectors grouped into respective category based on similar types of economic activity. This study estimates the economic contribution of each of the major forest products industry sectors and the

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<sup>1</sup> Estimates reported in this study may be different from other similar studies because of the different methodology used in estimating forest products industry economic contribution and selection of other forestry-related sectors those not included in this study.

forest products industry as a whole. Economic contributions of the industry are measured by four statistics: employment – the number of full and part-time jobs; labor income – sum of employee compensation and proprietary income; output – total value of production by the industry in given year; and value-added – includes employee compensation, proprietary income, property income, and indirect business taxes. In addition, economic contributions are estimated in terms of direct effects (industry’s own production), indirect effects (inter-industry purchase in response to original industry demand), and induced effects (household spending from consumption of goods and services using income generated from direct and indirect effects). Total effects are the sum of direct, indirect, and induced effects. The study also estimated total tax contributions of the forest products industry.

## **Results**

### **Statewide Contributions**

The Wisconsin economy, including the forest products industry, is presented in Table 2 and reports the direct economic effects of the industry. Table 3 through 5 present economic contributions of each forest products sectors and report direct effects of the sector of interest and the resultant indirect and induced effects occurring in other sectors of the state economy. Total effects are reported in the table row titled ‘Total’. Summing the effects of the individual forest products industry overestimates the economic contributions. Therefore, 28 forestry related sectors were aggregated into a single forest products industry, and the economic contribution of the industry as a whole is presented in Table 6. Aggregating forest-related sectors will internalize the indirect and induced effects and other forest-related sectors and thus provide a more precise estimate of the economic contribution of the industry. Tax contributions of the forest products industry of state, local and federal taxes are presented in Table 7 and 8, respectively.

The forest products industry directly produced \$24.4 billion of gross output in 2017 which was 3.8% of the total industry output in Wisconsin (Table 1). The industry employed 63,624 workers, 1.7% of the state’s total jobs, and paid \$4.2 billion in labor income, including wages, benefits, taxes paid to governments on behalf of employees, and proprietor income. The industry’s average annual labor income was \$66,000 compared to \$54,000 for the state average as a whole, \$12,000 more than state average. Value-added accounted for 27.5%, or \$6.7 billion, of the industry output.

Figure 1 shows the direct economic contribution of each 28 forestry related sectors included in the forest products industry. The size of the bubble represents direct gross output, the x-axis represents value-added in million dollars, and the y-axis represents employment numbers. Figure 1 illustrates most of the forest products industry economic contributions were made by the pulp and paper industry specifically, paper mills, paper board container manufacturing, and paper bag and coated and treated paper manufacturing. Total jobs generated by these sectors were 23,788 accounting 78.6% of pulp and paper industry jobs and 37.4% of forest products industry jobs (Table Appendix 1).

The contributions of the forest products industry are transferred to other sector of the economy through indirect and induced effects. Including direct, indirect, and induced (total contribution), the forest products industry accounted for 4.1% of state employment (152,438 jobs) with an annual payroll of \$9 billion (Table 6). The industry total contribution was \$38.5 billion in gross output and related value-added was \$14.6 billion or 37.9% of the industry output. Sectors that benefited most from the forest products industry in terms of employment were health care and social services, wholesale trade, administrative and support and waste management and remediation services, retail trade, accommodation and food services, transportation and warehousing, professional, scientific, and technical services, and other services (except public administration). Total job contributions in these sectors were 63,398 accounting for 71.4% of additional jobs (indirect and induced) tied to the forest products industry.

Wisconsin's forest products industry contributed \$3.1 billion of total taxes - \$1.1 billion in state and local taxes and \$2.0 billion in federal tax (Table 7 and 8, respectively).

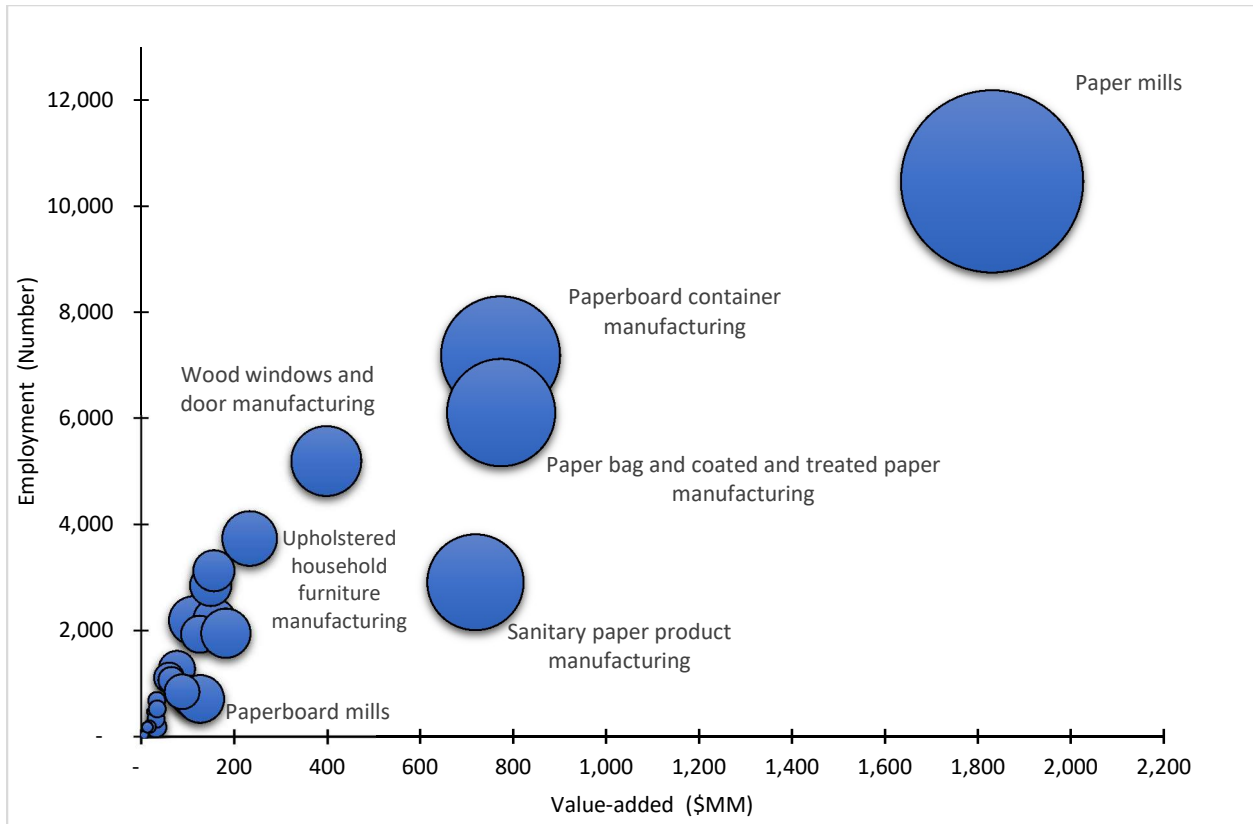


Figure 1. Direct economic contributions of the Wisconsin forest products industry by sector, 2017

### Sub-industry Contributions

Economic contributions varied across sub-industries in the Wisconsin forest sector. Economic contributions for each forest products industry are discussed below.

### Forestry and Logging

This sector is comprised of three sectors – forestry, forest products, and timber tract production; commercial logging; and support activities for forestry (Table Appendix 2). According to the North American Industrial Classification System (NAICS) definition, forestry, forest products, and timber tract production industry are engaged in the operation of timber tracts for the purpose of selling standing timber and growing trees for reforestation and or gathering forest products (such as gums, barks, balsam needles, rhizomes, fibers, Spanish moss, ginseng, and truffles).

Logging is the first step in the timber supply chain, providing raw materials to other sectors of the economy. NAICS defines logging as the industry primarily engaged in cutting timber, cutting and transporting timber, and producing wood chips in the field. The support activities for forestry comprises establishments primarily engaged in performing support roles tied to timber production, wood technology, forestry economics and marketing, and forest protection.

Forestry and logging sector employed 5,745 individuals and paid \$337.4 million in labor income (Table 2). Average annual labor income for the sector was \$59,000 compared to \$54,000 for the statewide average. The industry output and value-added were \$517.4 million and \$399.6 million, respectively. Total contribution, including direct, indirect, and induced, made by the forestry and logging sector amounted to 8,511 jobs, \$455.4 million in labor income, \$865.4 million in gross output, and \$601.1 million in value-added (Table 3).

In terms of employment, the sectors that most benefited from the forestry and logging sector were health care and social services; retail trade; and agriculture, forestry, fish and hunting. The forestry and logging sector contributed more than 300 jobs to each of these sectors. In total, the forestry and logging sector contributed additional 2,766 jobs to other sectors of economy.

In terms of taxes, the forestry and logging sector contributed \$38.2 million in state and local taxes (Table 7) and \$74.4 million in federal taxes (Table 8), a total of \$122.9 million.

### **Sawmills and Wood Products**

This sector is comprised of 17 sub-sectors – sawmills, wood preservation, veneer and plywood manufacturing, engineered wood member and truss manufacturing, wood windows and door manufacturing, cut stock, resawing lumber, and planing, other millwork, including flooring, wood container and pallet manufacturing, manufactured home (mobile home) manufacturing, prefabricated wood building manufacturing, all other miscellaneous wood product manufacturing, wood kitchen cabinet and countertop manufacturing, upholstered household furniture manufacturing, non-upholstered household furniture manufacturing, wood office furniture manufacturing, and custom architectural woodwork and millwork (Table Appendix 2).

The sawmills and wood products sector employed 27,618 jobs and paid \$1.3 billion in labor income (Table 2). Average annual income was \$48,000; \$6,000 lower than the state average. The

industry gross output and value-added were \$5.9 billion and \$1.8 billion, respectively. Total contributions made by the sawmills and wood products sector amounted to 55,727 jobs, \$2.8 billion in labor income, \$10.1 billion in gross output, and \$4.2 billion in value-added (Table 4).

In terms of employment, the sectors benefited the most from sawmills and wood products included health care and social assistance, retail trade, and accommodation and food services. Each of these sectors employed more than 2,500 jobs tied to sawmill and wood products industry. In total, the sawmills and wood products sector generated an additional 28,109 jobs to other sectors of economy.

The sawmills and wood products sector generated \$294.1 million in state and local taxes (Table 7) and \$606.1 million in federal taxes (Table 8), for a total of \$900.2 million.

## **Pulp and Paper**

The pulp and paper sector include eight sub-sectors – pulp mills, paper mills, paperboard mills, paperboard container manufacturing, paper bag and coated and treated paper manufacturing, stationery product manufacturing, sanitary paper product manufacturing, and all other converted paper product manufacturing (Table Appendix 2).

The pulp and paper products sector was the largest forest products industry sector in the Wisconsin. The majority (48%) of the forest sector workers (30,216 individuals) were employed in pulp and paper industry. The industry paid \$2.5 billion in labor income (Table 2). Average annual income for the sector was \$84,000; \$30,000 higher than the state average. Total industry gross output and value-added were \$17.9 billion and \$4.5 billion, respectively. Total economic contribution made by pulp and paper sector amounted to 95,872 jobs, \$6.2 billion in labor income, \$28.5 billion in gross output, and \$10.4 billion in value-added (Table 5).

The sectors that most benefited from pulp and paper sectors included health care and social assistance, wholesale trade, administrative and support and waste management and remediation services, retail trade, accommodation and food services, transportation and warehousing, other services (except public administration), and professional, scientific, and technical services. Each of these sectors employed more than 4,500 jobs tied to pulp and paper sector. In total, the pulp and paper sector generated an additional 65,610 jobs to other sector of economy.



The pulp and paper sector generated \$754.6 million of state and local taxes (Table 7) and \$1.4 billion of federal taxes (Table 8), a total of \$2.1 billion.

### **Regional Contributions**

The economic contributions of the forest products industry varied substantially across the state's five regions: Northeast, Northwest, Central, Southwest, and Southeast (Figure 2). Table 9 presents the direct, indirect and included, and total economic contribution for each region. In terms of direct effect, Southeast had the greatest economic contributions. This region accounted for 57.5%, \$14 billion, of forest products industry gross output and employed around 50% of forestry workers (31,191), mainly from the pulp and paper industry. Including direct, indirect, and induced effects, the forest products industry in this region produced \$22.3 billion in gross output, \$8.5 billion in value-added, and employed 82,471 individuals.

Central Wisconsin shared 22% of total direct forest products industry output (\$5.4 billion) and employed 21% workers (13,124). The forest products industry ranked 4<sup>th</sup> in terms of number of employees in the region. Northeast, northwest, and southwest each shared around 7% of the direct forest products industry output and directly employed 19,309 workers in total, mainly from sawmills and wood products (13,706).

The forest products industry plays an important role in the local economies of some southeastern counties. Brown County contributed 12.5% of the forest products industry jobs and produced 17.4% of gross output. Winnebago and Outagamie together contributed 16.1% of forestry related jobs and produced 23.1% of the gross industry output.

In terms of direct jobs, Brown, Winnebago, Outagamie, Marathon, and Trempealeau were the top five counties. Likewise, in terms of direct output, Brown, Winnebago, Outagamie, Wood, and Marathon were the top five counties. Brown county ranked first in terms of pulp and paper industry jobs whereas Trempealeau ranked first in terms of sawmills and wood products industry employment. The forest products industry was number one employer for Florence, Iron, Lincoln, Price, Rusk, and Trempealeau counties.

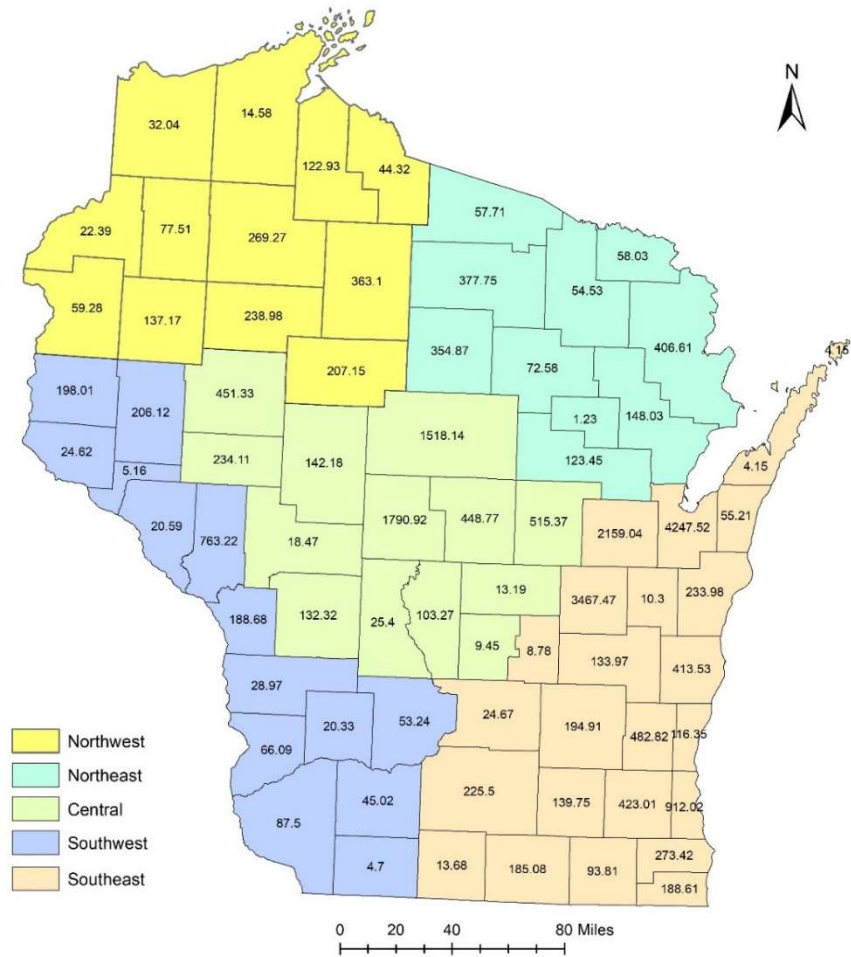


Figure 2: Regions in Wisconsin and forest products industry direct gross output for each county (in million dollars).

### Forest Products Industry Trend

The great economic recession that began in late-2007 to mid-2009 impacted Wisconsin forest products industry severely. In addition, the housing market collapse resulted in significant job loss in the forest products industry. Wisconsin forest products industry felt deleterious effects of

the recession from 2008 until 2013 and slowly started to rebound after 2013 (Figure 3). However, 2017 direct economic output was still down by 15.1% compared to 2006 (pre-recession year). In contrast, total industry output for the overall economy for the state increased by 18.21% suggesting the forest products industry could not keep pace with the state's overall economy over this time period. The magnitude of recession effects varied across sub-industries. Among the three major forest products industries, the forestry and logging was the most severely impacted. The industry lost 57.39% of gross output in 2017 compared to 2006. Similarly, sawmills and wood products industry lost 20.74% while pulp and paper lost 10.46% of gross output over this time period.

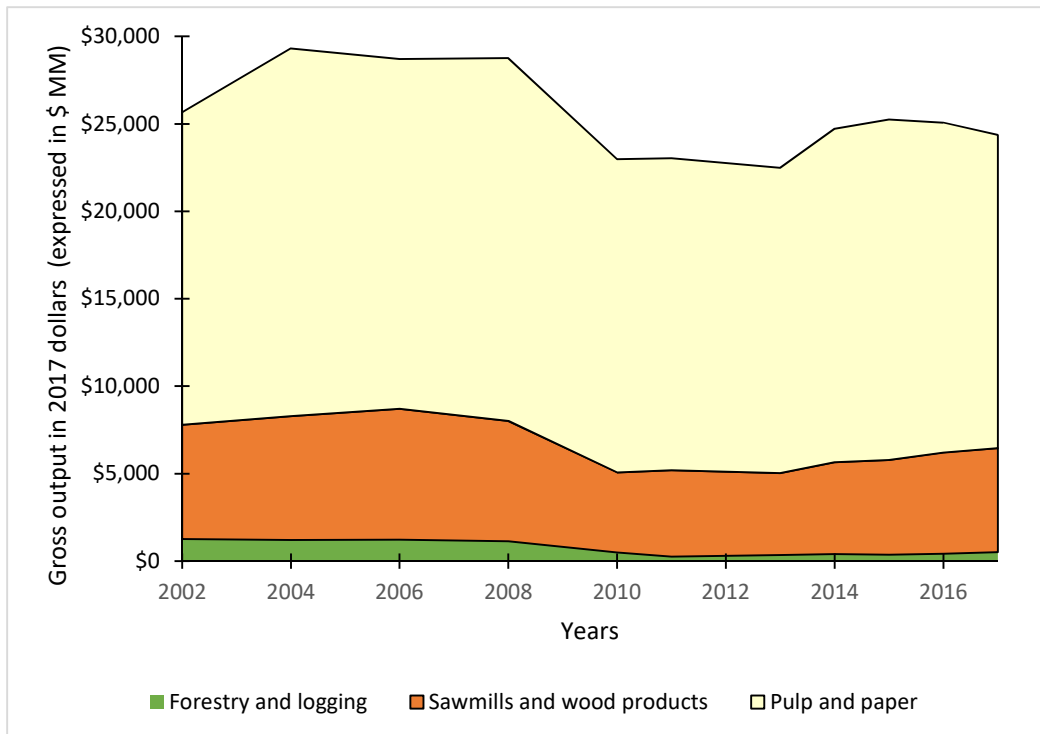


Figure 3. Direct economic output for Wisconsin forest products industry, 2002 -2017

## **Conclusion**

The Wisconsin's forest products industry plays an important role in the state economy. During the past decade, the forest products industry has remained one of the leading manufacturing sectors in the state. The 2007-2009 recession more severely impacted the wealth of Wisconsin forest products industry than the overall state economy. The nondurable consumer goods such as paper products were less sensitive to downturn than durable goods such as lumber and wood furniture sectors. With the end of recession in 2009 and a gradual improvement of the U.S. economy and housing market, the economic contribution of the forest products industry also gradually improved. In 2017, Wisconsin forest products industry directly contributed \$24.4 billion in industry output, and generated over 63,000 jobs with annual payroll of \$4.2 billion.

The economic contributions of the forest products industry also transferred to other sectors of the economy through indirect (inter-industry purchase) and induced effect (household spending). Including direct, indirect, and induced effect, forest products industry supported over 150,000 jobs and \$38.5 billion of gross output. Thus, the forest products industry made a substantial contribution to the state economy.

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Table 2. Direct effect of the industry on Wisconsin economy (2017 dollars)

Sectors	Employment	Labor Income \$MM	Gross Output \$MM	Value- added \$MM
Forestry and logging	5,745	339.43	517.44	399.56
Sawmills and wood furniture	27,618	1,333.24	5,936.88	1,798.55
Pulp and Paper	30,262	2,538.69	17,912.32	4,496.18
<b>Forest Products Industry (Total)</b>	<b>63,624</b>	<b>4,211.36</b>	<b>24,366.65</b>	<b>6,694.28</b>
Ag, Forestry, Fish, and Hunting	96,811	2,828.31	12,310.95	4,577.71
Mining	6,892	296.88	2,352.22	1,835.35
Utilities	10,760	1,890.07	12,722.61	5,397.43
Construction	180,879	11,227.26	30,903.33	14,848.52
Manufacturing	421,980	30,795.92	173,544.18	51,136.62
Wholesale trade	144,597	11,124.51	30,930.33	19,879.36
Retail trade	363,599	11,132.60	30,816.67	17,710.79
Transportation and warehousing	140,918	8,253.54	19,312.69	10,747.18
Information	54,283	4,338.12	19,819.74	9,845.87
Finance and Insurance	179,265	12,101.05	51,225.21	27,850.95
Real estate and rental and leasing	130,658	3,307.72	53,734.62	36,888.29
Professional, scientific, and technical services	203,559	14,202.29	29,477.29	17,165.24
Management of companies and Enterprises	70,588	7,757.82	16,067.01	9,086.37
Administrative and support and waste management and remediation services	178,118	6,245.98	12,563.80	7,897.00
Educational services	63,420	2,468.23	4,117.80	2,608.16
Health care and social services	428,757	25,308.50	45,944.53	28,738.24
Arts, entertainment, and recreation	70,014	1,557.32	4,671.69	2,346.06
Accommodation and food services	275,924	5,515.25	15,980.91	8,356.34
Other services (except public administration)	211,998	8,321.92	14,005.53	9,209.19
Public administration	405,690	26,322.82	33,478.92	31,260.81
<b>Total</b>	<b>3,702,333</b>	<b>199,207.46</b>	<b>638,346.65</b>	<b>324,079.78</b>

Table 3. Total effect of the forestry and logging sector on Wisconsin economy (2017 dollars)

Sectors	Employment	Labor Income \$MM	Gross Output \$MM	Value- added \$MM
<b>Forestry and logging</b>	<b>5,745</b>	<b>339.43</b>	<b>517.44</b>	<b>399.56</b>
Sawmills and wood furniture	9	0.40	2.55	0.59
Pulp and Paper	2	0.13	0.90	0.23
Ag, Forestry, Fish, and Hunting	352	4.71	11.19	6.71
Mining	1	0.02	0.16	0.13
Utilities	6	1.06	7.33	3.07
Construction	24	1.53	4.03	1.94
Manufacturing	30	2.01	12.70	3.73
Wholesale trade	122	9.38	26.08	16.76
Retail trade	375	11.59	31.15	18.13
Transportation and warehousing	109	6.39	15.02	8.20
Information	32	2.34	13.21	6.05
Finance and Insurance	144	9.08	37.05	18.45
Real estate and rental and leasing	115	2.99	59.63	40.77
Professional, scientific, and technical services	97	6.35	12.24	7.61
Management of companies and Enterprises	22	2.42	5.00	2.83
Administrative and support and waste management and remediation services	127	4.36	8.79	5.50
Educational services	83	3.18	5.27	3.36
Health care and social services	486	29.71	53.99	33.89
Arts, entertainment, and recreation	71	1.57	4.92	2.43
Accommodation and food services	284	5.51	15.94	8.26
Other services (except public administration)	264	10.37	17.47	11.52
Public administration	12	0.83	3.35	1.39
<b>Total</b>	<b>8,511</b>	<b>455.36</b>	<b>865.42</b>	<b>601.12</b>

Table 4. Total effect of the sawmills and wood furniture sector on Wisconsin economy (2017 dollars)

Sectors	Employment	Labor Income \$MM	Gross Output \$MM	Value- added \$MM
<b>Sawmills and wood furniture</b>	<b>27,618</b>	<b>1,333.24</b>	<b>5,936.88</b>	<b>1,798.55</b>
Forestry and logging	1,939	116.37	179.99	138.23
Pulp and Paper	91	7.42	46.47	10.93
Ag, Forestry, Fish, and Hunting	199	3.68	11.23	6.00
Mining	10	0.30	2.23	1.67
Utilities	149	25.14	177.77	73.31
Construction	413	25.97	66.99	32.92
Manufacturing	804	53.68	257.59	95.10
Wholesale trade	2,304	177.27	492.89	316.79
Retail trade	2,592	80.67	215.28	125.46
Transportation and warehousing	2,084	128.22	299.29	165.41
Information	618	45.97	229.61	97.43
Finance and Insurance	1,440	92.58	352.35	177.32
Real estate and rental and leasing	1,069	28.02	454.82	310.91
Professional, scientific, and technical services	2,143	139.57	263.00	162.82
Management of companies and Enterprises	1,145	125.83	260.60	147.37
Administrative and support and waste management and remediation services	2,238	77.09	155.99	94.08
Educational services	486	18.63	30.98	19.71
Health care and social services	3,062	188.42	343.44	215.06
Arts, entertainment, and recreation	710	14.39	42.86	21.22
Accommodation and food services	2,577	49.57	147.80	76.66
Other services (except public administration)	1,903	79.19	139.06	93.09
Public administration	136	9.20	37.24	15.76
<b>Total</b>	<b>55,727</b>	<b>2,820</b>	<b>10,144</b>	<b>4,196</b>



Table 5. Total effect of the pulp and paper sector on Wisconsin economy (2017 dollars)

Sectors	Employment	Labor Income \$MM	Gross Output \$MM	Value- added \$MM
<b>Pulp and Paper</b>	<b>30,262</b>	<b>2,538.69</b>	<b>17,912.32</b>	<b>4,496.18</b>
Forestry and logging	1,963	117.67	181.80	139.68
Sawmills and wood furniture	826	34.31	182.03	48.43
Ag, Forestry, Fish, and Hunting	297	6.32	21.25	10.70
Mining	60	3.23	17.79	13.40
Utilities	747	124.88	827.73	339.67
Construction	1,428	89.76	230.63	113.88
Manufacturing	2,396	173.74	752.64	263.49
Wholesale trade	6,190	476.22	1,324.08	851.01
Retail trade	5,617	174.95	467.49	272.60
Transportation and warehousing	5,005	341.60	797.92	452.42
Information	1,133	84.86	412.36	177.05
Finance and Insurance	3,180	204.29	784.32	396.16
Real estate and rental and leasing	2,395	64.11	1,055.29	708.53
Professional, scientific, and technical services	4,639	310.06	578.72	355.74
Management of companies and Enterprises	3,498	384.39	796.11	450.22
Administrative and support and waste management and remediation services	6,160	210.17	426.85	260.40
Educational services	1,070	40.98	68.16	43.35
Health care and social services	6,738	414.59	755.74	473.20
Arts, entertainment, and recreation	1,542	30.61	92.84	45.36
Accommodation and food services	5,582	107.44	318.94	165.29
Other services (except public administration)	4,671	203.42	360.97	242.99
Public administration	474	31.97	130.23	56.47
<b>Total</b>	<b>95,871</b>	<b>6,168</b>	<b>28,496</b>	<b>10,376</b>

Table 6. Total effect of the forest products industry on Wisconsin economy (2017 dollars)

Sectors	Employment	Labor Income \$MM	Gross Output \$MM	Value- added \$MM
<b>Forestry and logging</b>	<b>5,745</b>	<b>339.43</b>	<b>517.44</b>	<b>399.56</b>
<b>Sawmills and wood furniture</b>	<b>27,618</b>	<b>1,333.24</b>	<b>5,936.88</b>	<b>1,798.55</b>
<b>Pulp and Paper</b>	<b>30,262</b>	<b>2,538.69</b>	<b>17,912.32</b>	<b>4,496.18</b>
Ag, Forestry, Fish, and Hunting	591	11.26	35.43	18.49
Mining	69	3.53	19.99	15.05
Utilities	891	149.35	1,000.71	411.02
Construction	1,832	115.16	296.18	146.08
Manufacturing	3,189	226.62	1,007.61	357.42
Wholesale trade	8,425	648.14	1,802.08	1,158.22
Retail trade	8,244	256.65	685.58	399.69
Transportation and warehousing	7,038	466.42	1,089.35	613.42
Information	1,741	130.07	639.00	273.36
Finance and Insurance	4,614	296.49	1,135.92	573.00
Real estate and rental and leasing	3,462	92.06	1,513.15	1,021.55
Professional, scientific, and technical services	6,738	446.63	836.26	515.18
Management of companies and Enterprises	4,603	505.89	1,047.73	592.52
Administrative and support and waste management and remediation services	8,359	285.99	580.33	352.95
Educational services	1,565	59.99	99.76	63.46
Health care and social services	9,851	606.07	1,104.71	691.74
Arts, entertainment, and recreation	2,248	44.99	135.74	66.60
Accommodation and food services	8,156	156.97	466.42	241.78
Other services (except public administration)	6,588	282.95	500.33	336.20
Public administration	609	41.11	167.24	72.13
<b>Total</b>	<b>152,438</b>	<b>9,038</b>	<b>38,530</b>	<b>14,614</b>

Table 7. Total State and Local Government, Non-Education Taxes (\$MM) generated by the industry (2017 dollars)

Description	Forestry and logging	Sawmills and wood products	Pulp and paper	Forest products industry
Corporate Profit Tax	\$1.09	\$10.44	\$32.71	\$43.08
Dividends	\$0.09	\$0.90	\$2.82	\$3.72
Tax on Production and imports <sup>1</sup>	\$23.61	\$203.84	\$546.54	\$750.19
Personal Tax <sup>2</sup>	\$13.39	\$78.85	\$172.33	\$252.75
Security Tax <sup>3</sup>	\$0.00	\$0.07	\$0.16	\$0.23
Total	\$38.18	\$294.10	\$754.56	\$1,049.98

<sup>1</sup>Includes sales tax, property tax, motor vehicle license, severance tax, other taxes, and S/L non-taxes

<sup>2</sup>Includes income tax, non-taxes (fines-fees), motor vehicle license, property taxes, other taxes (fish/hunt).

<sup>3</sup>Includes employee contribution, employer contribution.

Table 8. Federal, Non-defense Taxes (\$MM) generated by the industry (2017 dollars)

Description	Forestry and logging	Sawmills and wood products	Pulp and paper	Forest products industry
Corporate Profit Tax	\$5.41	\$52.03	\$163.05	\$214.78
Tax on Production and imports <sup>1</sup>	\$2.48	\$21.46	\$57.54	\$78.97
Personal Tax	\$36.09	\$212.48	\$464.38	\$681.09
Security Tax <sup>2</sup>	\$30.71	\$320.11	\$703.83	\$1,023.17
Total	\$74.70	\$606.09	\$1,388.80	\$1,998.02

<sup>1</sup>Includes excise taxes, custom duty, and non-taxes.

<sup>2</sup>Includes employee contribution, employer contribution.

Table 9. Economic contribution of forest products industry reported in 2017 dollars

	Employment	Labor Income	Industry Output	Value-added
	Number	MM \$	MM \$	MM \$
<b>Direct effect</b>				
Northeast region	5,233	264.98	1,654.78	429.61
Northwest region	6,090	342.41	1,589.12	492.57
Central	13,124	891.83	5,402.91	1,446.84
Southeast	31,191	2,289.45	14,007.59	3,789.88
Southwest	7,986	422.69	1,712.25	535.38
Total	63,624	4,211.36	24,366.65	6,694.28
<b>Indirect and induced effect</b>				
Northeast region	3,699	142.63	481.63	243.27
Northwest region	4,153	159.10	560.84	274.89
Central	14,384	683.36	2,092.15	1,119.09
Southeast	51,280	2,914.49	8,306.81	4,754.46
Southwest	4,731	204.37	648.86	354.35
Total	78,246	4,104	12,090	6,746
<b>Total effect</b>				
Northeast region	8,932	407.60	2,136.41	672.88
Northwest region	10,243	501.51	2,149.96	767.46
Central	27,508	1,575.18	7,495.06	2,565.93
Southeast	82,471	5,203.94	22,314.39	8,544.34
Southwest	12,718	627.06	2,361.11	889.73
Total	141,871	8,315.30	36,456.93	13,440.34

Note: Sum of individual total economic contributions of regions do not equal to the state's economic contributions because of leakages (payments for goods and services imported from outside of the individual region).

Table Appendix 1. Direct economic contribution of related forest products sector in 2017 dollars

Description	Employment	Labor Income \$MM	Gross Output \$MM	Value-added \$MM
Forestry, forest products, and timber tract production	62	3.78	5.49	3.88
Commercial logging	5,207	314.61	489.76	375.32
Support activities for forestry	476	21.03	22.18	20.36
<b>Forestry and logging industry</b>	<b>5,745</b>	<b>339.43</b>	<b>517.44</b>	<b>399.56</b>
Sawmills	2,195	88.15	594.84	111.30
Wood preservation	189	11.51	121.58	31.53
Veneer and plywood manufacturing	1,283	62.35	344.24	76.60
Engineered wood member and truss manufacturing	1,119	54.08	239.46	59.64
Reconstituted wood product manufacturing	772	53.46	432.03	107.95
Wood windows and door manufacturing	5,196	277.28	1,214.73	396.96
Cut stock, resawing lumber, and planing	335	16.96	85.67	31.65
Other millwork, including flooring	2,206	97.57	465.54	157.04
Wood container and pallet manufacturing	2,854	112.45	439.88	148.99
Manufactured home (mobile home) manufacturing	193	9.14	49.88	17.81
Prefabricated wood building manufacturing	1,073	53.29	186.68	64.79
All other miscellaneous wood product manufacturing	1,935	83.64	359.91	125.23
Wood kitchen cabinet and countertop manufacturing	3,130	142.16	438.71	155.83
Upholstered household furniture manufacturing	3,738	204.27	754.81	232.46
Nonupholstered wood household furniture manufacturing	687	27.39	85.43	33.30
Wood office furniture manufacturing	185	9.41	39.02	13.34
Custom architectural woodwork and millwork	529	30.12	84.45	34.15
<b>Sawmills and wood products industry</b>	<b>27,618</b>	<b>1,333.24</b>	<b>5,936.88</b>	<b>1,798.55</b>
Pulp mills	39	4.88	26.41	6.51
Paper mills	10,477	941.80	7,953.93	1,829.76
Paperboard mills	717	66.38	582.57	126.52
Paperboard container manufacturing	7,192	579.89	3,376.30	772.26
Paper bag and coated and treated paper manufacturing	6,120	498.35	2,797.65	773.40
Stationery product manufacturing	852	59.00	319.15	87.61
Sanitary paper product manufacturing	2,910	248.22	2,238.60	718.60
All other converted paper product manufacturing	1,955	140.16	617.71	181.52
<b>Pulp and paper industry</b>	<b>30,262</b>	<b>2,538.69</b>	<b>17,912.32</b>	<b>4,496.18</b>
<b>Forest products industry</b>	<b>63,624</b>	<b>4,211.36</b>	<b>24,366.65</b>	<b>6,694.28</b>

Table Appendix 2. Aggregation Scheme of Commercial sectors (two-digits NAICS code) used for IMPLAN Input-output, 2017

Aggregated Sector	Original IMPLAN Sectors (number in parenthesis is IMPLAN code)
Forestry and logging	Forestry, forest products, and timber tract production (15); Commercial logging (16); Support activities for forestry (19) *
Sawmills and wood products	Sawmills (134); Wood preservation (135); Veneer and plywood manufacturing (136); Engineered wood member and truss manufacturing (137); Reconstituted wood product manufacturing (138); Wood windows and door manufacturing (139); Cut stock, resawing lumber, and planing (140); Other millwork, including flooring (141); Wood container and pallet manufacturing (142); Manufactured home (mobile home) manufacturing (143); Prefabricated wood building manufacturing (144); All other miscellaneous wood product manufacturing (145); Wood kitchen cabinet and countertop manufacturing (368); Upholstered household furniture manufacturing (369); Nonupholstered wood household furniture manufacturing (370); Wood office furniture manufacturing (373); Custom architectural woodwork and millwork (374)
Pulp and paper	Pulp mills (146); Paper mills (147); Paperboard mills (148); Paperboard container manufacturing (149); Paper bag and coated and treated paper manufacturing (150); Stationary product manufacturing (151); Sanitary paper product manufacturing (152); All other converted paper product manufacturing (153)
Agriculture, Forestry, Fish, and Hunting [NAICS 11]	Oilseed farming (1); Grain farming (2); Vegetable and melon farming (3); Fruit farming (4); Tree nut farming (5); Greenhouse, nursery, and floriculture production (6); Tobacco farming (7); Cotton farming (8); Sugarcane and sugar beet farming (9); All other crop farming (10); Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming (11); Dairy cattle and milk production (12); Poultry and egg production (13); Animal production, except cattle and poultry and eggs (14); Commercial fishing (17); Commercial hunting and trapping (18); Support activities for agriculture (19)*
Mining [NAICS 21]	Extraction of natural gas and crude petroleum (20); Extraction of natural gas liquids (21); Coal mining (22); Iron ore mining (23); Gold ore mining (24); Silver ore mining (25); Lead and zinc ore mining (26); Copper ore mining (27); Uranium-radium-vanadium ore mining (28); Other metal ore mining (29); Stone mining and quarrying (30); Sand and gravel mining (31); Other clay, ceramic, refractory minerals mining (32); Potash, soda, and borate mineral mining (33); Phosphate rock mining (34); Other chemical and fertilizer mineral mining (35); Other nonmetallic minerals (36); Drilling oil and gas wells (37); Support activities for oil and gas operations (38); Metal mining services (39); Other nonmetallic minerals services (40)
Utilities [NAICS 22]	Electric power generation – Hydroelectric (41); Electric power generation – Fossil fuel (42); Electric power generation – Nuclear (43); Electric power generation – Solar (44); Electric power generation – Wind (45); Electric power

	generation – Geothermal (46); Electric power generation – Biomass (47); Electric power generation – All other (48); Electric power transmission and distribution (49); Natural gas distribution (50); Water, sewage and other systems (51); Federal electric utilities (519); State government electric utilities (522); Local government electric utilities (525)
Construction [NAICS 23]	Construction of new health care structures (52); Construction of new manufacturing structure (53); Construction of new power and communication structure (54); Construction of new educational and vocational structure (55); Construction of new highway and streets (56); Construction of new commercial structures, including farm structure (57); Construction of other new nonresidential structures (58); Construction of new single-family residential structures (59); Construction of new multifamily residential structures (60); Construction of other new residential structures (61); Maintenance and repair construction of nonresidential structures (62); Maintenance and repair construction of residential structures (63); Maintenance and repair construction of highways, streets, bridges, and tunnels (64)
Manufacturing [NAICS 31-33]	Dog and cat food manufacturing (65); Other animal food manufacturing (66); Flour milling (67); Rice milling (68); Malt manufacturing (69); Wet corn milling (70); Soybean and other oilseed processing (71); Fats and oils refining and blending (72); Breakfast cereal manufacturing (73); Beet sugar manufacturing (74); Sugar cane mills and refining (75); Nonchocolate confectionery manufacturing (76); Chocolate and confectionery manufacturing from cacao beans (77); Confectionery manufacturing from purchased chocolate (78); Frozen fruits, juices and vegetables manufacturing (79); Frozen specialties manufacturing (80); Canned fruits and vegetables manufacturing (81); Canned specialties (82); Dehydrated food products manufacturing (83); Fluid milk manufacturing (84); Creamery butter manufacturing (85); Cheese manufacturing (86); Dry, condensed, and evaporated dairy product manufacturing (87); Ice cream and frozen dessert manufacturing (88); Animal, except poultry, slaughtering (89); Meat processed and carcasses (90); Rendering and meat byproduct processing (91); Poultry processing (92); Seafood product preparation and packaging (93); Bread and bakery product, except frozen, manufacturing (94); Frozen cakes and other pastries manufacturing (95); Cookie and cracker manufacturing (96); Dry pasta, mixes, and dough manufacturing (97); Tortilla manufacturing (98); Roasted nuts and peanut butter manufacturing (99); Other snack food manufacturing (100); Coffee and tea manufacturing (101); Flavoring syrup and concentrate manufacturing (102); Mayonnaise, dressing, and sauce manufacturing (103); Spice and extract manufacturing (104); All other food manufacturing (105); Bottled and canned soft drinks & water (106); manufactured ice (107); Breweries (108); Wineries (109); Distilleries (110); Tobacco product manufacturing (111); Fiber, yarn, and thread mills (112); Broadwoven fabric mills (113); Narrow fabric mills and schiffli machine embroidery (114); Nonwoven fabric mills (115); Knit fabric mills (116); Textile and fabric finishing mills (117); Fabric coating mills (118); Carpet and rug mills (119); Curtain and linen mills (120); Textile bag and canvas mills (121); Rope,

cordage, twine, tire cord and tire fabric mills (122); Other textile product mills (123); Hosiery and sock mills (124); Other apparel knitting mills (125); Cut and sew apparel contractors (126); Men's and boys' cut and sew apparel manufacturing (127); Women's and girls' cut and sew apparel manufacturing (128); Other cut and sew apparel manufacturing (129); Apparel accessories and other apparel manufacturing (130); Leather and hide tanning and finishing (131); Footwear manufacturing (132); Other leather and allied product manufacturing (133); Printing (154); Support activities for printing (155); Petroleum refineries (156); Asphalt paving mixture and block manufacturing (157); Asphalt shingle and coating materials manufacturing (158); Petroleum lubricating oil and grease manufacturing (159); All other petroleum and coal products manufacturing (160); Petrochemical manufacturing (161); Industrial gas manufacturing (162); Synthetic dye and pigment manufacturing (163); Other basic inorganic chemical manufacturing (164); Other basic organic chemical manufacturing (165); Plastics material and resin manufacturing (166); Synthetic rubber manufacturing (167); Artificial and synthetic fibers and filaments manufacturing (168); Nitrogen fertilizer manufacturing (169); Phosphatic fertilizer manufacturing (170); Fertilizer mixing (171); Pesticide and other agricultural chemical manufacturing (172); Medicinal and botanical manufacturing (173); Pharmaceutical preparation manufacturing (174); In-vitro diagnostic substance manufacturing (175); Biological product (except diagnostic) manufacturing (176); Paint and coating manufacturing (177); Adhesive manufacturing (178); Soap and other detergent manufacturing (179); Polish and other sanitation good manufacturing (180); Surface active agent manufacturing (181); Toilet preparation manufacturing (182); Printing ink manufacturing (183); Explosives manufacturing (184); Custom compounding of purchased resins (185); Photographic film and chemical manufacturing (186); Other miscellaneous chemical product manufacturing (187); Plastics packaging materials and unlaminated film and sheet manufacturing (188); Unlaminated plastics profile shape manufacturing (189); Plastics pipe and pipe fitting manufacturing (190); Laminated plastics plate, sheet (except packaging), and shape manufacturing (191); Polystyrene foam product manufacturing (192); Urethane and other foam product (except polystyrene) manufacturing (193); Plastics bottle manufacturing (194); Other plastics product manufacturing (195); Tire manufacturing (196); Rubber and plastics hoses and belting manufacturing (197); Other rubber product manufacturing (198); Pottery, ceramics, and plumbing fixture manufacturing (199); Brick, tile, and other structural clay product manufacturing (200); Flat glass manufacturing (201); Other pressed and blown glass and glassware manufacturing (202); Glass container manufacturing (203); Glass product manufacturing made of purchased glass (204); Cement manufacturing (205); Ready-mix concrete manufacturing (206); Concrete block and brick manufacturing (207); Concrete pipe manufacturing (208); Other concrete product manufacturing (209); manufacturing (210); Gypsum product manufacturing (211); Abrasive product manufacturing (212); Cut stone and stone product manufacturing (213); Ground or treated mineral and earth manufacturing (214); Mineral wool manufacturing (215); Miscellaneous nonmetallic mineral product manufacturing (216); Iron and steel mills and



ferroalloy manufacturing (217); Iron, steel pipe and tube manufacturing from purchased steel (218); Rolled steel shape manufacturing (219); Steel wire manufacturing (220); Alumina refining and primary aluminum production (221); Secondary smelting and alloying of aluminum (222); Aluminum sheet, plate, and foil manufacturing (223); Other aluminum rolling, drawing and extruding (224); Nonferrous metal (except aluminum) smelting and refining (225); Copper rolling, drawing, extruding and alloying (226); Nonferrous metal, except copper and aluminum, shaping (227); Secondary processing of other nonferrous metals (228); Ferrous metal foundries (229); Nonferrous metal foundries (230); Iron and steel forging (231); Nonferrous forging (232); Custom roll forming (233); Crown and closure manufacturing and metal stamping (234); Cutlery, utensil, pot, and pan manufacturing (235); Handtool manufacturing (236); Prefabricated metal building and components manufacturing (237); Fabricated structure metal manufacturing (238); Plate work manufacturing (239); Metal window and door manufacturing (240); Sheet metal work manufacturing (241); Ornamental and architectural metal work manufacturing (242); Power boiler and heat exchanger manufacturing (243); Metal tank (heavy gauge) manufacturing (244); Metal can manufacturing (245); Metal barrels, drums and pails manufacturing (246); Hardware manufacturing (247); Spring and wire product manufacturing (248); Machine shops (249); Turned product and screw, nut, and bolt manufacturing (250); Metal heat treating (251); Metal coating and nonprecious engraving (252); Electroplating, anodizing, and coloring metal (253); Valve and fittings, other than plumbing, manufacturing (254); Plumbing fixture fitting and trim manufacturing (255); Ball and roller bearing manufacturing (256); Small arms ammunition manufacturing (257); Ammunition, except for small arm, manufacturing (258); Small arms, ordnance, and accessories manufacturing (259); Fabricated pipe and pipe fitting manufacturing (260); Other fabricated metal manufacturing (261); Farm machinery and equipment manufacturing (262); Lawn and garden equipment manufacturing (263); Construction machinery manufacturing (264); Mining machinery and equipment manufacturing (265); Oil and gas field machinery and equipment (266); Food product machinery manufacturing (267); Semiconductor machinery manufacturing (268); Sawmills, woodworking, and paper machinery (269); Printing machinery and equipment manufacturing (270); All other industrial machinery manufacturing (271); Optical instrument and lens manufacturing (272); Photographic and photocopying equipment manufacturing (273); Other commercial and service industry machinery manufacturing (274); Air purification and ventilation equipment manufacturing (275); Heating equipment (except warm air furnaces) manufacturing (276); Air conditioning, refrigeration, and warm air heating equipment manufacturing (277); Industrial mold manufacturing (278); Special tool, die, jig, and fixture manufacturing (279); Cutting tool and machine tool accessory manufacturing (280); Machine tool manufacturing (281); Rolling mill and other metalworking machinery manufacturing (282); Turbine and turbine generator set units manufacturing (283); Speed changer, industrial high-speed drive, and gear manufacturing (284); Mechanical power transmission equipment manufacturing (285); Other engine equipment manufacturing (286); Pump and pumping equipment manufacturing

(287); Air and gas compressor manufacturing (288); Measuring and dispensing pump manufacturing (289); Elevator and moving stairway manufacturing (290); Conveyor and conveying equipment manufacturing (291); Overhead cranes, hoists, and monorail systems manufacturing (292); Industrial truck, trailer, and stacker manufacturing (293); Power-driven handtool manufacturing (294); Welding and soldering equipment manufacturing (295); Packaging machinery manufacturing (296); Industrial process furnace and oven manufacturing (297); Fluid power cylinder and actuator manufacturing (298); Fluid power pump and motor manufacturing (299); Scales, balances, and miscellaneous general purpose machinery manufacturing (300); Electronic computer manufacturing (301); Computer storage device manufacturing (302); Computer terminals and other computer peripheral equipment manufacturing (303); Telephone apparatus manufacturing (304); Broadcast and wireless communications equipment manufacturing (305); Other communications equipment manufacturing (306); Audio and video equipment manufacturing (307); Bare printed circuit board manufacturing (308); Semiconductor and related device manufacturing (309); Capacitor, resistor, coil, transformer, and other inductor manufacturing (310); Electronic connector manufacturing (311); Printed circuit assembly (electronic assembly) manufacturing (312); Other electronic component manufacturing (313); Electromedical and electrotherapeutic apparatus manufacturing (314); Search, detection, and navigation instruments manufacturing (315); Automatic environmental control manufacturing (316); Industrial process variable instruments manufacturing (317); Totalizing fluid meters and counting devices manufacturing (318); Electricity and signal testing instruments manufacturing (319); Analytical laboratory instrument manufacturing (320); Irradiation apparatus manufacturing (321); Watch, clock, and other measuring and controlling device manufacturing (322); Blank magnetic and optical recording media manufacturing (323); Software and other prerecorded and record producing (324); Electric lamp bulb and part manufacturing (325); Lighting fixture manufacturing (326); Small electrical appliance manufacturing (327); Household cooking appliance manufacturing (328); Household refrigerator and home freezer manufacturing (329); Household laundry equipment manufacturing (330); Other major household appliance manufacturing (331); Power, distribution, and specialty transformer manufacturing (332); Motor and generator manufacturing (333); Switchgear and switchboard apparatus manufacturing (334); Relay and industrial control manufacturing (335); Storage battery manufacturing (336); Primary battery manufacturing (337); Fiber optic manufacturing (338); Other communication and energy wire manufacturing (339); Wiring device manufacturing (340); Carbon and graphite product manufacturing (341); All other miscellaneous electrical equipment and component manufacturing (342); Automobile manufacturing (343); Light truck and utility vehicle manufacturing (344); Heavy duty truck manufacturing (345); Motor vehicle body manufacturing (346); Truck trailer manufacturing (347); Motor home manufacturing (348); Travel trailer and camper manufacturing (349); Motor vehicle gasoline engine and engine parts manufacturing (350); Motor vehicle electrical and electronic equipment manufacturing (351); Motor vehicle steering, suspension component (except spring), and brake systems

	<p>manufacturing (352); Motor vehicle transmission and power train parts manufacturing (353); Motor vehicle seating and interior trim manufacturing (354); Motor vehicle metal stamping (355); Other motor vehicle parts manufacturing (356); Aircraft manufacturing (357); Aircraft engine and engine parts manufacturing (358); Other aircraft parts and auxiliary equipment manufacturing (359); Guided missile and space vehicle manufacturing (360); Propulsion units and parts for space vehicles and guided missiles manufacturing (361); Railroad rolling stock manufacturing (362); Ship building and repairing (363); Boat building (364); Motorcycle, bicycle, and parts manufacturing (365); Military armored vehicle, tank, and tank component manufacturing (366); All other transportation equipment manufacturing (367); Other household nonupholstered furniture manufacturing (371); Institutional furniture manufacturing (372); Office furniture, except, wood, manufacturing (375); Showcase, partition, shelving, and locker manufacturing (376); Mattress manufacturing (377); Blind and shade manufacturing (378); Surgical and medical instrument manufacturing (379); Surgical appliance and supplies manufacturing (380); Dental equipment and supplies manufacturing (381); Ophthalmic goods manufacturing (382); Dental laboratories (383); Jewelry and silverware manufacturing (384); Sporting and athletic goods manufacturing (385); Doll, toy, and game manufacturing (386); Office supplies (except paper) manufacturing (387); Sign manufacturing (388); Gasket, packing, and sealing device manufacturing (389); Musical instrument manufacturing (390); Fasteners, buttons, needles, and pins manufacturing (391); Broom, brush, needles, and pins manufacturing (392); Burial casket manufacturing (393); All other miscellaneous manufacturing (394);</p>
Wholesale trade [NAICS 42]	Wholesale trade businesses (395)
Retail trade [NAICS 44-45]	Retail Stores - Motor vehicle and parts (396); Retail - Furniture and home furnishings stores (397); Retail - Electronics and appliances stores (398); Retail - Building material and garden supplies stores (399); Retail - Food and beverage stores (400); Retail - Health and personal care stores (401); Retail - Gasoline stores (402); Retail - Clothing and clothing accessories stores (403); Retail - Sporting goods, hobby, musical instrument and book (404); Retail - General merchandise stores (405); Retail - Miscellaneous store retailers (406); Retail - Nonstore retailers (407)
Transportation and warehousing [NAICS 48-49]	Air transportation (408); Rail transportation (409); Water transportation (410); Truck transportation (411); Transit and ground passenger transportation (412); Pipeline transportation (413); Scenic and sightseeing transportation and support activities for transportation (414); Couriers and messengers (415); Warehousing and store (416) Postal Service (518); State government passenger transit (521); Local government passenger transit (524);
Information [NAICS 51]	Newspaper publishers (417); Periodical publishers (418); Book publishers (419); Directory, mailing list, and other publishers (420); Greeting card publishing (421); Software publishers (422); Motion picture and video industries (423);

	Sound recording industries (424); Radio and television broadcasting (425); Cable and other subscription programming (426); Wired telecommunication carriers (427); Wired telecommunication carriers (except satellite) (428); Satellite, telecommunications resellers, and all other telecommunications (429); Data processing, hosting, and related services (430); News syndicates, libraries, archives and all other information services (431); Internet publishing and broadcasting and web service portals (432)
Finance and Insurance [NAICS 52]	Monetary authorities and depository credit intermediation (433); Nondepository credit intermediation and related activities (434); Securities and commodity contracts intermediation and brokerage (435); Other financial investment activities (436); Insurance carriers (437); Insurance agencies, brokerages, and related activities (438); Funds, trusts, and other financial vehicles (439);
Real estate and rental and leasing [NAICS 53]	Real estate establishments (440); Owner-occupied dwellings (441); Automotive equipment rental and leasing (442); General and consumer goods rental except video tapes and discs (443); Video tape and disc rental (444); Commercial and industrial machinery and equipment rental and leasing (445); Lessors of nonfinancial intangible assets (446)
Professional, Scientific, and Technical Services [NAICS 54]	Legal services (447); Accounting, tax preparation, bookkeeping, and payroll services (448); Architectural, engineering, and related services (449); Specialized design services (450); Custom computer programming services (451); Computer systems design services (452); Other computer related services, including facilities management (453); Management consulting services (454); Environmental and other technical consulting services (455); Scientific research and development services (456); Advertising, public relations, and related services (457); Photographic services (458); Veterinary services (459); Marketing research and all other miscellaneous professional, scientific, and technical services (460)
Management of companies and enterprises [NAICS 55]	Management of companies and enterprises (461)
Administrative and support and waste management and remediation services [NAICS 56]	Office administrative services (462); Facilities support services (463); Employment services (464); Business support services (465); Travel arrangement and reservation services (466); Investigation and security services (467); Services to buildings (468); Landscape and horticulture services (469); Other support services (470); Waste management and remediation services (471)
Educational services [NAICS 61]	Elementary and secondary schools (472); Junior colleges, colleges, universities, and professional schools (473); Other educational services (474);
Health care and social assistance [NAICS 62]	Offices of physicians (475); Offices of dentists (476); Offices of other health practitioners (477); Outpatient care centers (478); Medical and diagnostic laboratories (479); Home health care services (480); Other ambulatory health care services (481); Hospitals (482); Nursing and community care facilities (483); Residential mental retardation, mental health, substance abuse and other

	facilities (484); Individual and family services (485); Community food, housing, and other relief services, including rehabilitation services (486); Child day care services (487)
Arts, entertainment, and recreation [NAICS 71]	Performing arts companies (488); Commercial Sports Except Racing (489); Racing and Track Operation (490); Promoters of performing arts and sports and agents for public figures (491); Independent artists, writers, and performers (492); Museums, historical sites, zoos, and parks (493); Amusement parks and arcades (494); Gambling industries (except casino hotels) (495); Other amusement and recreation industries (496); Fitness and recreational sports centers (497); Bowling centers (498)
Accommodation and food services [NAICS 72]	Hotels and motels, including casino hotels (499); Other accommodations (500); Full-service restaurants (501); Limited-service restaurants (502); All other food services and drinking places (503)
Other services (except public administration) [NAICS 81]	Automotive repair and maintenance, except car washes (504); Car washes (505); Electronic and precision equipment repair and maintenance (506); Commercial and industrial machinery and equipment repair and maintenance (507); Personal and household goods repair and maintenance (508); Personal care services (509); Death care services (510); Dry-cleaning and laundry services (511); Other personal services (512); Religious organizations (513); Grantmaking, giving, and social advocacy organizations (514); Business and professional associations (515); Labor and civic organizations (516); Private household (517)
Public administration [NAICS 92]	Other federal government enterprises (520); Other state government enterprises (523); Other local government enterprises (526); Employment and payroll of state govt, non-education (531); Employment and payroll of state govt education (532); Employment and payroll of local govt, non-education (533); Employment and payroll of local govt education (534); Employment and payroll of federal govt, non-military (535); Employment and payroll of federal govt, education (536)
Non NAICS	Used and secondhand goods (527); Scrap (528); Rest of the world adjustment (529); Noncomparable imports (530)

\*Partial IMPLAN sector. IMPLAN Sector 19 was separated between support activities for forestry and support activities for agriculture based on employment ratio obtained from US Bureau of Labor Statistics.